

CLAIMS

- 1 A reproducing method for audio signal, comprising:
 - delivering an audio signal to respective first plural digital filters;
 - delivering outputs of the first plural digital filters to respective plural speakers constituting a speaker array to form sound field;
 - respectively setting predetermined delay times at the first plural digital filters so that respective propagation delay times, required until the audio signal arrives at a first point within the sound field through the first plural digital filters and the respective plural speakers coincide with each other;
 - delivering the audio signal to the respective second plural digital filters;
 - respectively delivering outputs of the second plural digital filters to the plural speakers; and
 - respectively setting predetermined transfer characteristics at the second plural digital filters so as to control sound at a second point within the sound field among sounds formed from outputs of the first plural digital filters.
- 2 The reproducing method for audio signal as set forth in claim 1,
 - wherein sound wave radiated from the speaker array is reflected on a wall surface, and arrives at the first point.

- 3 The reproducing method for audio signal as set forth in claim 1,
wherein the second point is substantially the same as the first point.
- 4 A reproducing method for audio signal, comprising:
delivering an audio signal to respective first plural digital filters;
delivering outputs of the first plural digital filters to respective plural
speakers constituting a first speaker array to form sound field;
respectively setting predetermined delay times at the first plural digital
filters so that respective propagation delay times required until the audio
signal arrives at a first point within the sound field through the first plural
digital filters and the respective speakers of the first speaker array coincide
with each other;
delivering the audio signal to respective second plural digital filters;
delivering outputs of the second plural digital filters to respective
plural speakers constituting a second speaker array; and
respectively setting predetermined transfer characteristics at the
second plural digital filters so as to control sound at a second point within the
sound field among sounds formed from outputs of the first plural digital
filters.
- 5 The reproducing method for audio signal as set forth in claim 4,
wherein sound wave radiated from the first speaker array is reflected
on a wall surface, and arrives at the first point.

- 6 The reproducing method for audio signal as set forth in claim 4,
wherein the second point is substantially the same as the first point.
- 7 A reproducing apparatus for audio signal, comprising:
first plural digital filters each supplied with an audio signal;
second plural digital filters each supplied with the audio signal; and
a speaker array caused to be of the configuration in which plural
speakers are arranged
to respectively deliver outputs of the first plural digital filters to the
respective plural speakers to form sound field
to respectively set predetermined delay times at the first plural digital
filters so that respective propagation times required until the audio signal
arrives at a first point within the sound field through the first plural digital
filters and the respective plural speakers coincide with each other
to respectively deliver outputs of the second plural digital filters to the
respective plural speakers
to respectively set predetermined transfer characteristics at the second
plural digital filters so as to control sound at a second point within the sound
field among sounds formed from outputs of the first plural digital filters.
- 8 The reproducing apparatus for audio signal as set forth in claim 7,
wherein sound wave radiated from the speaker array is reflected on a
wall surface, and arrives at the first point.

- 9 The reproducing apparatus for audio signal as set forth in claim 8,
wherein the second point is substantially the same as the first point.
- 10 The reproducing apparatus for audio signal as set forth in claim 7,
which includes plural subtraction circuits respectively supplied with
outputs of the first plural digital filters and outputs of the second plural digital
filters to respectively deliver outputs of the plural subtraction circuits to the
plural speakers.
- 11 A reproducing apparatus for audio signal, including:
first plural digital filters each supplied with an audio signal;
second plural digital filters each supplied with the audio signal;
a first speaker array caused to be of the configuration in which plural
speakers are arranged; and
a second speaker array caused to be of the configuration in which
plural speakers are arranged
to deliver outputs of the first plural digital filters to the respective
plural speakers constituting the first speaker array to form sound field
to respectively set predetermined delay times at the first plural digital
filters so that respective propagation delay times required until the audio
signal arrives at a first point within the sound field through the first plural
digital filters and the respective speakers of the first speaker array coincide
with each other

to deliver the audio signal to the respective second plural digital filters
to respectively deliver outputs of the second plural digital filters to the
respective plural speakers constituting the second speaker array

to respectively set predetermined transfer characteristics at the second
plural digital filters so as to control sound at a second point within the sound
field among sounds formed from outputs of the first plural digital filters.

12 The reproducing apparatus for audio signal as set forth in claim 11,
wherein sound wave radiated from the first speaker array is reflected
on a wall surface, and arrives at the first point.

13 The reproducing apparatus for audio signal as set forth in claim 12,
wherein the second point is substantially the same as the first point.